

REMARKS

Applicants acknowledge receipt of the office action dated November 8, 2002, in which the Examiner rejected all claims pending in the application. Applicants have amended the claims and respectfully traverse the rejections for the following reasons.

Objections to the Drawings

The Examiner objected to the drawings because the reference numerals 30 and 40 in Figures 5 and 6 do not indicate the respective parts to which they refer. Applicants submit concurrently herewith a Proposed Drawing amendment, in which the reference numerals 30 and 40 have been repositioned and a lead lines indicating the parts to which they refer have been added. Specifically, reference numeral 30 refers to an upper load bearing member and reference numeral 40 refers to a wall beam. The former comprise part of the superstructure, while the latter comprise part of the substructure.

Because claim 6 has been canceled, Applicants respectfully submit that no amendment to the Figures regarding the objections under 37 CFR 1.83(a) is required.

Rejection under 35 U.S.C. § 112

Applicants believe that the amendments to the claims have mooted the grounds for rejection under § 112. Specifically, claims 1, 3, and 5-13 have been deleted and new claims 15-24 have been added. Applicants respectfully submit that the new claims do not suffer the deficiencies asserted by the Examiner.

Rejection under 35 U.S.C. § 102

In rejecting claims 1-14 as anticipated by *Willingham* '492, the Examiner asserts that *Willingham* discloses every limitation in those claims. Applicants respectfully disagree, for the reasons set out below.

First, all of the currently pending claims, like all of the originally submitted claims, require that the both the substructure and the superstructure be constructed of concrete tunnels. In contrast, *Willingham* discloses a tunnel-formed building that is constructed on top of a conventional substructure. More specifically, the substructure of *Willingham* comprises a plurality of conventional columns. This is made clear by the specification of *Willingham*, which reads:

Particularly, the building, generally designated 11 is formed on a foundation including, for example, a plurality of pilings P (FIG. 3) and a foundation floor or slab 12 constructed in the usual manner, and having a plurality of upstanding columns 14 arranged in a manner compatible with the Tee construction system as

amplified below. . . Columns 14 may be precast or poured in place concrete as desired and extend vertically to provide support for a sub or first floor of building 11 as well as for the assembly of Tee and modified Tee elements which form the remainder of the building upwardly from the sub or first floor. The column type construction illustrated is employed for example to provide an enlarged lobby and/or parking area in the specific building illustrated. Also, a column type construction can be utilized at the top of the building and at any intermediate level or plurality of levels thereof to provide an enlarged area as the particular building design dictates.

Column 12, ll. 31-51 (emphasis added). Hence, it is clear that *Willingham* does not contemplate the use of tunnels for the structure of the lower floor(s). In fact, *Willingham* provides no more suggestion of the present invention that does the prior art described generally in the Background of the present specification.

Unlike the structure of *Willingham*, the presently claimed invention provides a substructure that is both capable of supporting the superstructure and can be constructed using the same techniques (tunnel-forming) that are used to construct the superstructure. More particularly, applicants have devised a method for constructing a parking structure using tunnel-forming in which the number of parking spaces that are available on the lower floors is significantly greater than the number would be available if the parking structure were constructed without the teachings of the present invention. By also allowing the lower, parking structure to be constructed using the same methods and materials as the upper structure, instead of the separate forms and techniques used to construct columns, the present invention provides distinct advantages over the state of the art.

Second, the claims have been amended to more clearly recite the features of the present structure that result in the afore-mentioned advantages. Specifically, the independent claims have been replaced with claims that recite the relative lengths and configurations of the various tunnel walls that are used to carry out the principles of the invention. The claims now recite not only the use of poured-in-place tunnels for the substructure, but also the configuration of the wall beams ("first tunnel walls") that allows an extra parking space to be provided.

Thus, the cited references neither teach nor suggest the construction of a structure in accordance with the presently amended claims.

Conclusion

For all of these reasons, applicants submit that claims 15 and 20, as well as the dependent claims that depend from them, are allowable over the art of record. Applicants therefore request

that the Examiner reconsider and withdraw the rejection. If the Examiner has any questions or comments, he is encouraged to telephone the undersigned at (713) 238-8043.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Marcella D. Watkins", written over a horizontal line.

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Marked-up Copy of Claims Showing Changes Made

Please cancel claims 1, 3, and 5-13.

2. (Amended) The structure of claim ~~1~~15 wherein said ~~first configuration~~substructure is a parking garage and said ~~second configuration~~superstructure is residential space.

4. (Amended) The structure of claim ~~3~~15 wherein ~~at least one of said side portions of said interface level is not as long as said vertical portions of said substructure~~said fourth length is equal to said second length.

14. (Amended) The method of claim ~~13~~15 wherein said ~~drive aisle openings extend~~drive aisle opening extends to a height less than the full height of the tunnel.

15. (New) A structure comprising:

a substructure including a drive aisle and a plurality of parking spaces and comprising a plurality of parallel, adjacent, poured-in-place tunnels, each tunnel including a transverse drive aisle opening therethrough, said substructure including:

a plurality of first tunnel walls having a first length, said drive aisle openings in said first tunnel walls being wider than said drive aisle; and

a plurality of second tunnel walls having a second length, said second length being less than said first length;

an interface level comprising a plurality of parallel, adjacent, poured-in-place tunnels, said interface level including:

a plurality of third tunnel walls vertically aligned with said first tunnel walls and having a third length, said third length being at least as great as said first length; and

a plurality of fourth tunnel walls vertically aligned with said second tunnel walls and having a fourth length, said fourth length being at least as great as said second length; and

a superstructure comprising a plurality of parallel, adjacent, poured-in-place tunnels having walls that are each vertically aligned with one of said first and second tunnel walls.

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16. (New) The structure according to claim 15 wherein each of said first and second tunnel walls has an inner end and an outside end and the drive aisle openings in said first tunnel walls extend as far from said first tunnel wall first ends as the distance between said second tunnel wall first ends and said second tunnel wall second ends.

17. (New) The structure according to claim 16 wherein each first tunnel wall is separated from another first tunnel wall by a pair of second tunnel walls.

18. (New) The structure according to claim 17 wherein said first and second tunnel walls are spaced from each other such that three adjacent parking spaces are defined between two adjacent pairs of second tunnel walls, with said three parking spaces being centered under the first tunnel wall that is disposed between said adjacent pairs of second tunnel walls.

19. (New) The structure according to claim 18 wherein one of said three parking spaces occupies a portion of the drive aisle opening of the first tunnel wall that is disposed between said adjacent pairs of second tunnel walls.

20. (New) A method for constructing a building, comprising:

a) constructing a substructure including a drive aisle and a plurality of parking spaces and comprising a plurality of parallel, adjacent, poured-in-place tunnels, each tunnel including a transverse drive aisle opening therethrough, including:

- i) pouring in place a plurality of first tunnel walls having a first length, said drive aisle openings in said first tunnel walls being wider than said drive aisle; and
- ii) pouring in place a plurality of second tunnel walls having a second length, said second length being less than said first length;

b) constructing an interface level comprising a plurality of parallel, adjacent, poured-in-place tunnels, including:

- i) pouring in place a plurality of third tunnel walls vertically aligned with said first tunnel walls and having a third length, said third length being at least as great as said first length; and

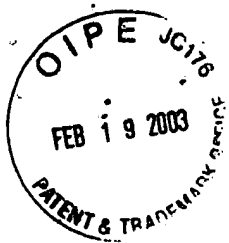
- ii) pouring in place a plurality of fourth tunnel walls vertically aligned with said second tunnel walls and having a fourth length, said fourth length being at least as great as said second length; and
- c) constructing a superstructure comprising a plurality of parallel, adjacent, poured-in-place tunnels having walls that are each vertically aligned with one of said first and second tunnel walls.

21. (New) The method according to claim 21 wherein each of said first and second tunnel walls has an inner end and an outside end and the drive aisle openings in said first tunnel walls extend as far from said first tunnel wall first ends as the distance between said second tunnel wall first ends and said second tunnel wall second ends.

22. (New) The method according to claim 21 wherein each first tunnel wall is separated from another first tunnel wall by a pair of second tunnel walls.

23. (New) The method according to claim 22 wherein said first and second tunnel walls are spaced from each other such that three adjacent parking spaces are defined between two adjacent pairs of second tunnel walls, with said three parking spaces being centered under the first tunnel wall that is disposed between said adjacent pairs of second tunnel walls.

24. (New) The method according to claim 23 wherein one of said three parking spaces occupies a portion of the drive aisle opening of the first tunnel wall that is disposed between said adjacent pairs of second tunnel walls.



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A structure and method of constructing a multistory concrete building formed entirely of poured in place concrete tunnels and method of making same. The structure is constructed so that the substructure can be used as a parking garage and the superstructure as residential space. The unique use of concrete tunnels in both the substructure and superstructure combines the benefits of column and plate construction with concrete tunnel construction while eliminating the need for a traditional transfer deck between the superstructure and substructure. In one embodiment, the parking structure is constructed from tunnel walls of alternating lengths such that the drive aisle in certain walls can be extended so as to allow additional parking spaces to be formed in the planes of those walls.

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